an average output power of greater than about 100 mW measured over the spatial spot size; and

applying the laser output pulses to the target so that the laser output pulses cleanly remove at least two layers within the spatial spot size.

2. The method of claim 1 in which the layers comprise any combination of at least two of the following chemical compositions: organic dielectric material, reinforcement material, or metal or combination of metals.

3. (Twice Amended) The method of claim 2 in which the organic dielectric material comprises PTFE, polyimides, epoxies, BT, phenolics, cyanate esters, paper, cardboard, or combinations thereof; the reinforcement material comprises glass, aramid fibers, Kevlar™, ceramics, or combinations thereof; and the metal comprises aluminum, titanium, nickel, copper, tungsten, platinum, gold, molybdenum, palladium, silver, or combinations thereof.

4. The method of claim 1 in which the wavelength of the laser output pulses is within a range of about 180-400 nm.

5. (Amended) The method of claim 1 in which the target comprises at least three layers having different chemical compositions and optical absorption characteristics, and the laser output pulses sequentially remove all three layers.

6. (Twice Amended) The method of claim 1 in which the spatial spot size is less than about 50 μm across its surface diameter.

7. (Twice Amended) The method of claim 1 in which several pulses are employed to remove a spatial region of the target that is greater than 25 μm in diameter.

8. The method of claim 1 in which the laser output is generated by a solid-state laser.

9. (Amended) The method of claim 1 in which the layers have a combined depth of greater than 25 μm.

10. The method of claim 8 in which the solid-state laser is selected from the group of Nd:YAG, Nd:YLF, Nd:YAP, and Nd:YVO_4.

11. The method of claim 8 in which the laser comprises YAG doped with holmium or erbium.

12. The method of claim 1 in which the pulses are generated at a repetition rate of greater than about 1 kHz.

13. (Amended) The method of claim 1 in which the spatial spot size defines a spot area that is smaller than and lies within a spatial region of the target, the method further comprising:

directing the laser output pulses sequentially to multiple positions associated with the spatial region to remove multiple amounts of target material corresponding to the spot areas.

15. (Amended) The method of claim 13 in which the spatial region has a periphery and the multiple positions to which the laser output pulses are directed define a contiguous set of spot areas along the periphery of the spatial region to remove the target material within the spatial region and thereby produce a hole through the target material.

16. (Amended) The method of claim 13 in which the spatial region has a periphery and a central portion and in which the multiple positions to which the laser output pulses are directed define a contiguous set of spot areas extending outwardly from the central portion along a path to the periphery of the spatial region to remove the target material from the spatial region and thereby produce a blind via in the target material.

17. The method of claim 16 in which the path is generally of spiral shape.

22. (Amended) The method of claim 1 in which a single pulse cleanly removes material from at least two layers within the spatial spot size.

23. The method of claim 1 further comprising creating a blind via having a depth:diameter aspect ratio that is greater than 1.

24. The method of claim 1 futher comprising creating a via having a depth:diameter aspect ratio that is greater than 2.

25. The method of claim 24 in which the via is a through hole.

26. (Amended) The method of claim 15 in which the laser output pulses are generated at a repetition rate of greater than about 1 kHz; in which the target comprises at least an organic dielectric material, a reinforcement material, and a metal; and in which the organic dielectric material comprises PTFE, polyimides, epoxies, BT, phenolics, cyanate esters, paper, cardboard, or combinations thereof; the reinforcement material comprises glass, aramid fibers, Kevlar™, ceramics, or combinations thereof; and the metal comprises aluminum, titanium, nickel, copper, tungsten, platinum, gold, molybdenum, palladium, silver, or combinations thereof.

27. (Amended) The method of claim 26 in which the spatial spot size is less than about 50 μm in diameter and the layers have a combined depth of greater than about 25 μm.

28. The method of claim 1 in which the target comprises a circuit board.

29. The method of claim 3 in which the two layers comprise an organic dielectric material layer and a metal layer.

30. The method of claim 26 in which the target comprises a circuit board.

Add the following claims.

--31. The method of claim 1 further comprising:

forming a via having a diameter greater than that of the spatial spot size and smaller than about 300 μm, the via also having a depth of greater than 25 μm and the laser output pulses being generated at a repetition rate of greater than about 1 kHz.--

--32. The method of claim 1 in which the layers comprise any combination of at least two of the following chemical compositions: inorganic reinforcement material, or metal or combination of metals, or organic dielectric material with or without organic reinforcement material.--

--33. A method for laser processing a multi-layered target including at least two layers having different chemical compositions, comprising:

generating high power ultraviolet laser output pulses having a predetermined spatial spot size, a wavelength shorter than about 400 nm, a temporal pulse width shorter than about 100 ns, and an average output power of greater than about 100 mW measured over the spatial spot size; and

applying the laser output pulses to the target so that at least one of the laser output pulses simultaneously removes material from at least two layers within the spatial spot size and the laser output pulses cleanly remove at least two layers within the spatial spot size.--

--34. The method of claim 33 further comprising:

forming a via having a diameter greater than that of the spatial spot size and smaller than about 300 μm, the via also having a depth of greater than 25 μm and the laser output pulses being generated at a repetition rate of greater than about 1 kHz.--

--35. The method of claim 34 in which the layers comprise any combination of at least two of the following chemical compositions: inorganic reinforcement material, or metal or combination of metals, or organic dielectric material with or without organic reinforcement material.--